

Having, thus, described the invention, what is claimed is:

1 1. An apparatus for fixing the position of a metal end cap on a porous filter element,

2 the apparatus comprising:

3 a filter support mechanism for supporting a filter element;

4 a first inductive heater disposed at a first side of said filter element support

5 mechanism and being reciprocally movable with respect thereto; and

6 a drive system for selectively and reciprocally moving said first inductive heater

7 toward and away from said filter support mechanism.

2 2. The apparatus of claim 1, further comprising a second inductive heater disposed at

a second side of said filter element support mechanism and being reciprocally movable with

respect thereto; and wherein said drive system is operable to simultaneously move said first

and second inductive heaters in substantially opposite directions.

3 3. The apparatus of claim 2, further comprising first and second support pillars,

2 wherein said first inductive heater is movably supported in said first pillar, and said second

3 inductive heater is movably supported in said second pillar.

1 4. The apparatus of claim 3, further comprising a control shaft extending between said

2 first and second support pillars and being rotatably mounted thereto, said control shaft having

3 a first end with a right-hand threading formed thereon, and a second end with a left-hand

4 threading formed thereon, wherein each of said first and second heaters are threadably
5 connected to said control shaft.

1 5. The apparatus of claim 4, further comprising a motor, operatively connected to said
2 control shaft, for rotating said control shaft to move said inductive heaters in substantially
3 opposite directions.

1 6. An apparatus for fixing the position of metal end caps on a porous filter element,
2 the apparatus comprising:
3 a support structure comprising first and second side pillars and a boom
4 interconnecting the side pillars;
5 a control shaft disposed within said support structure and rotatably mounted thereto,
6 said control shaft having a first end with a right-hand threading formed thereon, and a second
7 end with a left-hand threading formed thereon;
8 a first inductive heater located in said first side pillar and movably supported on said
9 control shaft; and
10 a second inductive heater located in said second side pillar and movably supported on
11 said control shaft.

1 7. The apparatus of claim 6, further comprising a motor, operatively connected to said
2 control shaft, for rotating said control shaft to move said inductive heaters in substantially
3 opposite directions.

- 1 8. A method of forming a filter cartridge, comprising the steps of:
- 2 a) supporting a substantially cylindrical porous filter element at a central portion
- 3 thereof;
- 4 b) transferring the filter element to an end cap application station;
- 5 c) placing a pair of metal end caps, having an adhesive therein, on opposite ends of
- 6 said filter element;
- 7 d) transferring the filter element to an inductive heating station; and
- 8 e) heating the end caps, by inductive heating, thereby fixing the position of the end
- 9 caps on the filter element.

1 9. The method of claim 8, further comprising the steps of :

2 f) transferring the heater element, with attached end caps, to a final cure conveyor;

3 and

4 g) moving the heater element, on the final cure conveyor, through a final cure oven.

1 10. The method of claim 9, wherein said filter is rotated from a substantially

2 horizontal orientation to a substantially vertical orientation thereof during step f).

1 11. An apparatus for fixing the position of a metal end cap on a porous filter element,

2 the apparatus comprising:

3 a filter support apparatus for supporting a filter element, said filter support apparatus

4 being movable from a first station to a second station;

5 an emplacement applicator located at said first station for placing an end cap on an

6 end of a filter element held by said filter support apparatus;
7 a first inductive heater disposed at said second station and being reciprocally movable
8 with respect to said filter support apparatus; and
9 a heater moving device for selectively and reciprocally moving said first inductive
10 heater toward and away from said filter support apparatus at said second station.

1 12. The apparatus of claim 11, further comprising a second inductive heater at said
2 second station, and wherein said heater moving device is operable to move said first and
3 second inductive heaters simultaneously in opposite directions.

13. The apparatus of claim 1, wherein the filter support mechanism comprises a gripper assembly which is movably mounted on a continuous loop chain conveyor.

14. The apparatus of claim 11, wherein the filter support mechanism comprises a gripper assembly which is movably mounted on a continuous loop chain conveyor.

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REF ID: A6512